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The Economics of the German Investigation of Facebook's Data Collection

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Oliver Budzinski[#], Marina Grusevaja^{} & Victoriia Noskova^{+Δ}*

Abstract: The importance of digital platforms and related data-driven business models is ever increasing and poses challenges for the workability of competition in the respective markets (tendencies towards dominant platforms, paying-with-data instead of traditional money, privacy concerns, etc.). Due to such challenges, investigations of such markets are of high interest. One of recent cases is the investigation of Facebook's data collection practices by German competition authorities. Our paper, in contrast to the wide stream of legal studies on this case, aims to analyze whether Facebook's practices regarding data collection could constitute an abuse of market power from an economic perspective, more specifically against the background of modern data economics. In doing so we summarize the state of the advanced theories, including influences from behavioral economics, addressing such markets, and discuss four potential theories of harm.

Keywords: data economics, big data, economics of privacy, competition, Facebook case, paying-with-data, abuse of dominance, market power, digital economy

JEL-Codes: K21, L41, L86, L12, M21, L14, K42

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1. Introduction

In March 2016, German competition authorities started an investigation into the social network platform Facebook because of an alleged abuse of market power (*Bundeskartellamt* 2016). This case is unusual due to its core issue of investigation, which refers to specific terms of service regarding the use of user data. In brief, German competition authorities accused Facebook to abuse its market power on the social network market in Germany by making the use of the Facebook social network conditional on intensive collection and usage of user- and device-related data (i) from Facebook-owned services (Facebook, WhatsApp, Oculus, Masquerade, and Instagram) and (ii) from third-party websites visited or mobile apps used and – without the user’s consent – merging of those data with the facebook.com user account (*Bundeskartellamt* 2019a,b,c). The case was decided by the Federal Cartel Office of Germany (FCO; *Bundeskartellamt*) on 2019-02-06 but it is still ongoing in the court due to Facebook’s appeal. According to last available information, the Higher Regional Court in Duesseldorf ruled that the orders of the *Bundeskartellamt* are suspended until the Facebook’s appeal has been decided with the FCO filing an appeal against this ruling (*Reuters* 2019).

Due to its novel character, the case has attracted a lot of attention from the literature (see section 2 for a brief literature overview and summary). In contrast to the predominantly legal studies on the Facebook case, our paper aims to analyze whether Facebook’s practices regarding data collection could constitute an abuse of market power from an economic perspective. To this end, we provide an overview of available information about the German Facebook case (section 2) as well as economic insights about the role of personalized data in such markets (section 3). Then, we highlight four potential theories of harm from an economic perspective (section 4). In section 5, we conclude.

2. The Facebook Case

Nowadays the Facebook Group is one of the largest players in the digital market. Among the services offered by this group, there is not only the social network Facebook, but also online services and applications for smartphones, including such

applications as Instagram and WhatsApp. As the main way to monetize its services, the Facebook Group employs databased business models. In order to increase its revenues, Facebook developed tools which allow the company to collect, merge and use not only data inside Facebook social network and among other services from the Facebook Group, but also solutions for outside collection of user and device-related data from sources connected with Facebook via its business tools. Such extensive and unrestricted practices raise concerns regarding legality of their application.

In its decision, the FCO stated that “the efficiencies in a business model based on personalised advertising do not outweigh the interests of the users when it comes to processing data from sources outside of the social network” (*Bundeskartellamt* 2019a: 271). According to the FCO, the users’ consent with Facebook’s terms and conditions is a prerequisite for using the Facebook.com service in the first place (“take-it-or-leave-it” decision), but not an informed decision which could be seen as a voluntary consent. Additionally, Facebook kept its users not (fully) aware of the extent of its practices regarding data collection. As a result, users have insufficient control over the processing of their data. Considering Facebook’s market power, supported by networks effects and lock-in effect on users’ side, the FCO decided that Facebook’s actions “constitute an abuse of a dominant position on the social network market in the form of exploitative business terms” (*Bundeskartellamt* 2019c: 7). To be exact it is stated that “while the efficiencies of a data-driven business model for consumers are generally acknowledged, the outlined extent of data processing is to be deemed inappropriate and hence abusive” (*Bundeskartellamt* 2019c: 12). Such an inappropriate processing of data and its combination with Facebook accounts helped the company to gain “a competitive edge over its competitors in an unlawful way and increased market entry barriers, which in turn secures Facebook’s market power towards end customers” (*Bundeskartellamt* 2019c: 11). For the purpose of our paper, we do not discuss the soundness of the FCO’s market delineation and assessment of market power on the user side by Facebook (*Bundeskartellamt* 2019a: 46-143; *Bundeskartellamt* 2019c: 3-7). Instead, for the sake of our reasoning, we assume that Facebook enjoys at the least relative and sometimes also absolute market power.

The Facebook case has been broadly discussed from the legal point of view¹ (privacy law or consumer protection law) with the emphasis on personal data use without the explicit permission of the data holder. From a legal point of view, a special feature of the Facebook case is that violations of data protection standards are assessed to constitute an abuse of market power and, thus, a violation of competition law. This raises legal questions about the interface of competition law and consumer protection law as well as about their respective enforcement (inter alia, *Botta & Wiedemann* 2019; *Colangelo & Maggiolino* 2019; *Buiten* 2019, 2020; *Hladjk et al.* 2019; analysis of this question for third-party tracking introduced by *Robertson* 2020). In general, *Ezrachi & Robertson* (2019) show that third-party tracking is a growing industry and has its market power implications: tracking capacity should be ex ante considered in merger review and it may trigger an ex post analysis due to an adverse impact on the consumers. Since Facebook's practices are not restricted to Germany, some authors also discuss whether the FCO decision could set up a precedent in the EU (inter alia, *Volmar & Helmdach* 2018; *Colangelo & Maggiolino* 2018; *Wils* 2019; *Robertson* 2020). *Schneiders* (2019) provides an assessment of the case from the perspectives of communication science, media economics and law and stated that personal data can be seen as an anticompetitive factor, but non-dominant firms also tend to excessively collect and use personal data as well, so as a result application of competition law may not be the best way to deal with such problems. The idea regarding incentives for extended data collection from non-dominant players also presented in paper by *Buiten* (2020). Some articles use Facebook case as an example to illustrate general concerns in data-driven markets (*Botta & Wiedemann* 2018; *Lancieri* 2019; *Kathuria* 2019). In articles by *Becher* (2019), *Podszun* (2019), and *Staube* (2019) the main issues of FCO decision are discussed after its publication, about selected statements in preliminary assessments provided by FCO see inter alia in articles by *Hoppner* (2018), *Mas-solo* (2018), and *Volmar & Helmdach* (2018).

To the best of our knowledge, the literature has not discussed the case and the FCO decision from a distinctively economic perspective (although economic aspects

¹ Additionally to the summarized in this part international literature, the case was reviewed by a number of German-language law articles like, inter alia, *Franck* (2016), *Klotz* (2016), *Rothmann* (2018), and *Ellger* (2019).

played relevant roles in the analyses) with the notable exceptions of *Budzinski & Grusevaja* (2017) and *Haucap* (2019). The first paper discusses potential theories of harm from an economic perspective based on the preliminary information from the early stages of the case. *Haucap* (2019) provides a brief analysis of some outcomes and concepts applied in the FCO case and reviews the question whether data privacy concerns may be part of antitrust enforcement with emphasis on such issues as presence of consumer disutility from lower privacy, estimation of competitive level of privacy, access to data if it could be seen as an essential facility, and proper market definition for merger cases. While we consider his reasoning as an important input for our paper, his analysis rests more on platform economics whereas our analysis focuses on the economics of data as the main theoretical framework. Our article provides theoretical analysis and suggests following from theory and FCO decision theories of harm, which were not fully represented in literature so far. In order to provide such economic analysis, the economics of the commercial use of personalized data need to be applied. Therefore, section 3 summarizes the main insights from modern data economics.

3. Some Economics of Personalized Data

3.1 Introducing Remarks

The economic literature on personalized data (including privacy, big data, and related concepts) has developed since the 1970s (inter alia, *Hirshleifer* 1971, 1980; *Stigler* 1980; *Posner* 1981; *Varian* 1997; overview: *Acquisti et al.* 2016) with a renewed push of interest naturally surfacing with the increasing relevance of digital markets and online transactions in the 2000s (inter alia, *Taylor* 2004; *Acquisti & Varian* 2005; *Gross & Acquisti* 2005; *Hermalin & Katz* 2006; *Hui & Png* 2006; *Grossklags & Acquisti* 2007; *Beresford et al.* 2012; *Brown* 2016; *Heidhues et al.* 2016; *Kerber* 2016; *Heidhues & Köszegi* 2017; *Budzinski & Stöhr* 2019; *Obar & Oeldorf-Hirsch* 2020; *Hoffmann et al.* 2020; see for a modern overview *Budzinski & Kuchinke* 2020).

Personalized data includes both (i) “classic” registration data like email addresses, names, sex, age, perhaps residence information, maybe even account/payment in-

formation, and (ii) “advanced” consumption data that allows for conclusions and conjectures regarding the preferences of the consumers. The latter may consist of personalized data about individual (online) browsing, searching and buying histories (revealed preference data) as well as personalized data about preference-related statements of users through posts, comments, ratings, (Facebook-)“likes”, etc. (stated preference data). Additionally, individual movement profiles, collected through the location function of mobile devices, and other data may complement the information, so that pooling such data yields more or less accurate individual consumption patterns from which reasonable hypothesis about individual consumer preferences may be derived.

Somewhat generalizing and simplifying, the older literature focused on situations where consumers behave (hyper-) rational and smart, whereas service providers suffer from information disadvantages (asymmetric information in favor of the consumers). In this Stigler-Posner-Varian world, an enhanced use of personalized data increases efficiency and welfare because information asymmetries are reduced and strategic behavior of the consumers at the expense of service providers is frustrated. At the same time, databased abuse of market power is rather unlikely in such world.² Consequently, this literature focuses on setting incentives for consumers to reveal more personalized data (*Posner* 1981) as long as this increased information provision is not predominantly wasteful signal-jamming (*Akerlof* 1976; *Hirshleifer* 1980).

The emerging literature since the 2000s embraces additional constellations of the allocation of information as well as more complex, “behavioral” concepts of company and, in particular, consumer behavior. In the context of online transactions, information deficiencies may extend to when, how and by whom the personalized information about consumers (or “users”) is used as well as to the commercial value of this data and the (midterm) consequences for the users from commercial data employment. In this respect, it may be the consumers who experience information disadvantages, so that information asymmetries are reversed compared to

² A prime example would be an insurance company that cannot observe the individual risk of the consumers, while each consumer enjoys an information advantage. This may lead to inefficient prices or even lemon-like market failure problems (*Akerlof* 1970).

the Sigler-Posner-Varian world. Furthermore, consumers may not behave fully rational. First, they may not utilize available information. Second, phenomena described in behavioral economics such as framing and anchoring effects, loss aversion, salience as well as satisficing behavior may be relevant. Third (and partly overlapping), the presence of naïve consumers, i.e. consumers who do not correctly anticipate the economic interrelationships of their actions and decisions and, consequently, act overly trustful, may influence economic effects (*Heidhues & Köszegi* 2017). Again put in a generalizing and simplifying way, if consumers behave “only” bounded-rational and/or naïve, whereas service providers enjoy information advantages about the use and value of personalized data (information asymmetries in favor of the service providers), then effects are likely to differ from the Stigler-Posner-Varian world. In this behavioral-economics world, considerable scope for databased profits at the expense of consumer welfare surfaces as the newer literature shows in several regards. In particular in combination with market power, incentives for abusive strategies become relevant and welfare-decreasing effects likely. This general tendency remains valid if smart and naive consumers are mixed in an online market.

The well-known privacy paradox represents an accompanying phenomenon (inter alia, *Grossklags & Acquisti* 2007; *Beresford et al.* 2012). It corroborates the problems of information deficits and naïveté of consumers on databased online markets. Many users claim high monetary values of their personal data when asked in surveys or interviews. However, in experiments they give their data willingly away already in exchange for “free” lowest-value goods. Such a *paying with data* exerts general effects on the welfare of users due to the characteristics of personalized data as a means of payment. Most obviously, paying with data saves the monetary income of the users, so that they can spend it for other purposes. Moreover, personal data is a special type of currency because every user can reproduce and use it as often as she wants since personal data does not disappear if a consumer pays with it. Saving monetary income and the reproducibility of personal data both enhance consumer welfare as long as the value of data does not exceed the value of the received goods. Thus, a perfectly informed inhabitant of the Stigler-Posner-

Varian would benefit from paying with data because she will only pay with data if the condition for a Pareto-superior transaction is given.

Again, things look different for inhabitants of a behavioral economics world. Since they lack knowledge about data usage by the platforms (and third parties), they notoriously struggle to assess the commercial value of their personal data. Some may even fail to know that their data is used at all (and believe that those services and contents are truly “free” and “zero-price”), others rely on insufficient concepts of how the data is used as well as by whom and for what purposes. Some of the relevant information is unavailable to consumers or strategically and deliberately camouflaged and distorted by service providers. However, these information deficiencies also include the ignorance of available information, for instance codified in general terms and conditions any user must agree (usually by clicking a respective box) before using a given platform. Users tend to ignore this information due to its sheer length and information overload problems, due to complicated language (often because of legal requirements) and due to the feeling that they have no choice anyway (*Gross & Acquisti 2005; Obar & Oeldorf-Hirsch 2020*). Consequently, many users are incapable of performing an adequate consideration of utilities and costs of commercial deals paid with data. From a behavioral economics perspective, the perceived value of a currency unit is not the result of a rational calculus based upon sound monetary economics. Instead, it is based upon experience in using the respective currency. Often, we enjoy a lifelong daily experience dealing with our monetary currency and this has shaped our perception and ideas about its value.³ This experience is still lacking with data as a currency, creating hidden transaction costs that have the potential to reduce consumer welfare. There are two basic ways how to make a business out of personalized user data: data analysis and data trading.⁴

³ This also explains why a currency reform often does not stop consumers from calculating prices in the old currency for years and decades and why notions of “justified” or “fair” prices are often anchored in years- or decades-old commodity prices.

⁴ A third one would refer to markets for data technologies (*Budzinski & Kuchinke 2020*). However, due to a lack of relevance for our discussion of the Facebook case, we skip this aspect here.

3.2 Data Analysis

Taking the example of a social network service like Facebook, paying with data means that users pay for access by supplying personalized data. In return, the monetary price in traditional currency (such as € or US\$) is reduced, in the case of Facebook down to zero. When companies reduce the monetary price for their services, often down to zero, and revert to collecting personalized data from its users instead, then this relies on a business model. In other words, it is a *commercial strategy* to relinquish direct monetary revenue from the users. Business logic implies that the commercial employment of the collected personalized data offers higher revenues and, thus, is more profitable than to charge a monetary price. Note that it is a conscious and deliberate business decision to reduce the monetary price (often down to zero). It would be perfectly possible to charge a monthly price for the membership of a social network in exchange for providing the service (subscription model with flatrate pricing) or to price each individual feature according to usage quantities. Some service providers actually mix different models by offering both a free membership (often with limited functionality) and a paid-for membership (premium accounts), so that the consumer can choose. The music streaming service Spotify represents an example.

Three fundamental types of commercial business models can categorize the underlying paying-with-data phenomenon. All these business models are highly profitable for the companies employing them. However, this may or may not correspond to consumer welfare effects (*Budzinski & Kuchinke 2020*).

Data Analysis for Third-Parties (e.g. Targeted Advertising): Large collections of personalized data, in particular advanced consumption data, combined with sophisticated analysis competence offer value creation for third parties by selling insights from data analysis to them. Spotify, for instance, makes considerable revenue from selling the results of analyses of their user data to the music industry, tailor-made to the requests of the upstream industry. A special version of this type of creating revenues from data analysis is targeted advertising where companies like Facebook sell the result of their data analysis in respect to adequate target group to advertisers, often combined with the service to place the ads accordingly. In doing so, per-

sonalized data may be used to target advertising towards those users that with a high likelihood have preferences for the advertised good and, therefore, tend to buy it with a comparatively high probability. This phenomenon is well described by modern platform economics (theory of two-sided markets; *Rochet & Tirole* 2003, 2006; *Anderson & Gabszewicz* 2006; *Armstrong* 2006; *Haucap & Stühmeier* 2016). It particularly applies to free content offered over the internet financed by revenues from targeted advertising. The two platform sides “content users” and “advertisers” interact through indirect network externalities, i.e. the more content users visit the platform, the higher is the utility for advertisers to place advertising on this platform (see Appendix 1 with illustration used by the FCO in the Facebook case). If a platform is able to attract more users, the quantity of demand for advertising space will increase as will the individual willingness-to-pay of the advertisers. Consequently, the platform can balance the two sides by employing an asymmetric price structure: it prices the user side very low (often zero) because that attracts more users and the consequent increase in demand – and thus revenues – from advertisers easily more than offsets the relinquished revenues from the user side. The platform business model also works without utilizing personalized data. However, being able to offer advertisers access to users with a high probability of consumption of the advertised good (a target group) further increases the attractiveness of the platform for the advertisers since they can expect their advertising to be more effective and more successful. This further increases the willingness-to-pay of the advertisers since they now can get a “good” (advertising space) of a higher quality (targeting the “right” users). Facebook draws a significant part of its revenues from this business model. However, while advertisers derive a benefit from an increasing quantity of users of an online platform, this need not be the case in the other direction. An increasing quantity of advertising will affect users in different ways depending on user’s view regarding advertising. Some may experience a positive utility from the informational, persuasive, and complementary contents of advertising, whereas other may feel disturbed and annoyed (i.e. may experience a disutility from advertising). Targeted advertising is meant to increase the fit of advertised goods to user’s preferences and thus, should increase the utility of advertising-liking users and reduce the disutility of advertising-disliking users. Therefore,

it should increase consumer welfare compared to traditional advertising (*Acquisti & Varian* 2005; *Tucker* 2012; *Brown* 2016). However, the superior attractiveness of targeted advertising for the advertisers may result in an increase of total advertising quantity, which would *ceteris paribus* reduce consumer welfare because of increasing advertising-avoidance costs for users (*Hui & Png* 2006; *Anderson & de Palma* 2012). Furthermore, users may experience a higher degree of intrusiveness and annoyance from targeted advertising (*Tucker* 2012). The total effects are ambivalent and depend inter alia on the composition of advertising-liking and advertising-disliking users. New research points to low competition intensity as well as the presence of naïve users and price discrimination being accompanying factors that increase the probability of negative welfare effects of targeted advertising (*Hoffmann et al.* 2020). Whereas a considerable share of the users will be aware of their data being used for targeted advertising, knowledge about the employment of personalized data to selling insights from data analysis to third parties may be more limited.

Data Analysis for Individualized Services. Personalized data can be employed to create individualized services, tailor-made to the individual user, which are either a good in itself or a means to facilitate the buying of other goods (i.e. reducing transaction costs). Examples include databased search services, which provide a ranking of results that fit the preferences of the individual user, as well as data-based recommendation services that suggest a user or a buyer other products that she has a high probability of being interested in as well (*Belleflamme & Peitz* 2018; *Gaenssle & Budzinski* 2020). These individualized services, based on personalized data of the user, induce additional shopping as well as additional usage of the services by the consumers/users, thus increasing turnover and revenues. Amazon and Netflix represent prime examples. The user can quickly find the product she is interested in (databased search service) and she automatically receives suggestions of other products that – based on her individual personalized data – she probably likes (databased recommender system). Facebook also engages in this business model, for instance through its databased search service or the individualized friends-finding recommendation service. Such shaping of digital goods according to the preferences of the consumers should typically increase consumer welfare (*Acquisti*

& Varian 2005). However, they also tend to capture consumers in some kind of a bubble, making it more difficult to get exposed to contents challenging the hitherto preferences and habits. While this often may be in line with (conservative) preferences, it may generate negative externalities with respect to news consumption as well as limit the incentives for radical innovations (*Budzinski & Kuchinke 2020*).

Data Analysis for Individualized Pricing (Databased Price Discrimination): In particular advanced personalized data (e.g. individual search and consumption patterns or personal preference statements) can be employed to approximate the individual willingness-to-pay of users for a given good. Companies may then use this information to charge different consumers different prices for the same product or service. While this business model is extremely profitable for the companies, it is ambitious regarding the data requirements and entails a considerable potential of negative consumer welfare effects (inter alia, *Heidhues et al. 2016; Heidhues & Köszegi 2017; Hamelmann 2018: 84-149; Budzinski & Kuchinke 2020*). Since this type of practices does not play a role in the Facebook Case, we exclude this type from our analysis.

3.3 Direct and Indirect Data Trading

In its simplest type, data trading refers to companies trading (bundles of) data with each other. Companies may specialize on collecting data and then selling the resulting bundles of data to other companies who are interested in using data but do not want to engage in collecting it (*Acquisti et al. 2016*). In its simplest type, a company collects large bundles of email-addresses and sells it to a spamming company. A more advanced and sophisticated variant relates to the trade with individualized consumption patterns or geographic movement profiles of users. Facebook infamously does so with its subsidiaries Instagram and WhatsApp but from an economic perspective, they belong to the same commercial entity anyway. Whether or how Facebook directly trades (bundles of) user data with other companies not belonging to the Facebook group is not publicly known and may actually not take place.

Next to this simple type, there are (at the least) two more indirect ways of data trading. First, (limited, conditional) access to collected data may be offered in exchange for some sort of a premium or a leasing fee, perhaps with conditions on data usage. Preselected data may then be analysed by the “buyer” (data brokers such as Acxiom or Oracle Data Cloud) without becoming a permanent owner of the data. However, enforcing limits, restrictions and conditions of use may be challenging. This appears to be at the heart of the Facebook-Cambridge Analytica affair, perhaps with the latter violating contractual conditions.

A second indirect type of data trading relates to the heart of the Facebook case. So-called APIs (application programming interfaces) may include transmitting data from the application to the (technologically connected) platform. For instance, if a user visits a content website that is independent of the social network platform but the social network platform has embedded functions of this network, like for instance the Facebook Like- or Login-buttons, then her personal data may be transmitted to as well as collected and processed by the social network platform. This may happen even if the user does not hit the embedded buttons, so that the user browses under the impression that she is not touching the social network at all. Here, the user cannot anticipate that she is submitting her data to the social network platform. This type of data trading – the content provider “sells” the data of its users as part of the contractual arrangement to embed the social network functions to the social network platform – aggravates the consumer welfare reducing information deficiencies and asymmetries at the expense of the users described in the paying-with-data section above. According to the FCO, Facebook engages in this type of indirect data trading (*Bundeskartellamt* 2019a).

From an economic perspective, markets for data trading may be an efficient way of providing and using data. They may serve to alleviate problems like (access to) data being a barrier to entry or a monopolising force. Due to the (virtually) unlimited reproducibility of data, workable markets for data fuel a broad distribution of the data among competitors, especially if independent companies specialize on data collection and analysis. On the other hand, negative externalities on third parties as well as an increase of intransparency of data usage for users reduce consumer welfare (*Varian* 1997; *Acquisti & Varian* 2005). The aftermath of the Facebook-

WhatsApp-merger represents a telling example of how difficult the assessment of data usage even within one group of companies is for external parties. The European Commission is certainly way better informed than the standard user of Facebook or WhatsApp, still even the Commission was obviously deceived by the merging companies regarding the technical possibility and business incentives to pool, match and exploit personalized data from different subsidiaries of the Facebook group (*Deutscher* 2019).⁵ Furthermore, Facebook allegedly further increases in-transparency and information asymmetries by the way Facebook functions (e.g. like-buttons) are embedded through APIs in the content and services of third-party providers who appear to be acting independent of Facebook (*Bundeskartellamt* 2019a). It seems unlikely that even non-naive users anticipate this indirect type of data trading and are aware of it. From a data-economics perspective, thus, this points to negative consumer welfare effects, even according to the more data-trading-friendly approaches.

At the time of writing, Facebook's models of selling analysed data and/or licensing access to its data are subject to public controversy and, as a consequence, to internal review and revision (*European Commission* 2019a,b; *Facebook* 2019, 2020).

4. Theories of Harm in the Facebook Case from an Economic Perspective

4.1 Excessive Data Collection and Conditions

If collecting and commercially employing personalized data represents a profitable business model, then a market powerful service like Facebook experiences incentives to extend the collection and use of personalized data beyond what would be enforceable against the users in a more competitive market. In this sense supra-competitive data collection and usage conditions are excessive and can only be forced upon users because of the market power of Facebook, i.e. because users cannot realistically switch to an alternative service provider. From an economic perspective, this would constitute an (exploitative) abuse of market power, compara-

⁵ In 2017, the *European Commission* (2017) handed out a € 110 million fine against Facebook because of misleading information regarding user data usage submitted by the merging companies in the Facebook-WhatsApp-merger that was – perhaps erroneously – approved by the *European Commission* (2014).

ble to charging excessive prices in 'ordinary' markets. This reasoning also represents the economic backbone underlying the FCO's Facebook case although the main theory of harm is more specific (see section 4.2).

With respect to the FCO's Facebook case, four aspects require further analysis in order to qualify and assess a potential abuse of market power along these lines: (i) the ability of users to control their own data, (ii) the role of violations of data protection rules, (iii) the privacy paradox, and (iv) the analogy of excessive data extraction with excessive prices.

(i) The Ability of Users to Control their Personalized Data

The FCO puts emphasis on the ability of users to control what is done with their personalized data. In economic terms, this refers to asymmetric information, i.e. information deficits on the side of the users compared to the dominant service. A loss of control over data could be based on two market power-related issues.

First, there may be "hidden" excessive conditions in the form of strategically non-transparent General Terms and Conditions. Empirical studies have proven that most users do not carefully read and understand the General Terms and Conditions (*Gross & Acquisti* 2005): the General Terms and Conditions to enter a social network have been ignored completely by around three-quarters of the participants during an experiment. Furthermore, 98 per cent of the participants, who at least opened the General Terms and Conditions, did not discover the excessive conditions as a subsequent survey demonstrated. This corresponds to the empirical insight that most users are reading the General Terms and Conditions for less than 15 seconds (*Obar & Oeldorf-Hirsch* 2020). Users name as the main reason for their ignorance that the General Terms and Conditions are too long, contain too much information content and are written in a complicated way⁶ (*Budzinski & Schneider* 2017; *Obar & Oeldorf-Hirsch* 2020). The described bounded-rational behavior of users offers a social network service like Facebook the scope for strategically hiding

⁶ It has to be mentioned that the content arrangement of a company's General Terms and Conditions - though eventually being determined by the company itself - is to a considerable part subject to legal requirements and governmental regulations (like the rather very formal and complicated style of language).

excessive conditions in long and difficult-to-read provisions and/or General Terms and Conditions. While users technically agree with the conditions, they are in fact not aware of the content they have agreed to (*Monopolkommission* 2015: 74-75). However, this phenomenon does not depend on market power and is probably observable in competitive online service markets as well.

Second, and notwithstanding the first point, a dominant position enhances the scope for forcing users to “agree” to excessive conditions. The lack of alternative services (irrespective of their data policies) strengthens the subjective impression, that there is no other option than accepting the General Terms and Conditions. Facebook is further amplifying the pressure on users to – more or less blindly – accept its conditions by presenting them as a “take-it-or-leave-it” offer. Being an artificial platform (*Budzinski & Kuchinke* 2020), Facebook could easily offer alternative arrangements like a subscription service or a transaction fee for using their services. By framing the decision process as either accept and use or do not accept and do not use, the impression of consumers of not having a choice anyway is strategically increased.

According to the economic theory of personalized data (see section 3), such a construct may lead to negative welfare effects, since the situation is not fulfilling the requirements of a Stigler-Posner-World (high transparency, objective rationalism). The assumption of bounded rational and biased informed users describes the reality empirically more accurate. Consequently, the de facto lack of knowledge of consumers about the reach of data collection and commercial use of “their” data is welfare-decreasing and as far as this is escalated by Facebook’s market power, it represents an abuse of market power from an economic perspective.

(ii) The Role of Violations of Data Protection Rules

The legal literature controversially discusses whether violations of data protection and consumer protection laws constitute a case for competition policy (inter alia, *Botta & Wiedemann* 2019; *Colangelo & Maggiolino* 2019; *Buiten* 2019, 2020; *Hladjk et al.* 2019; *Robertson* 2020), fueled by an extensive reasoning of the FCO that legal precedents subsume considerable power imbalances leading to the en-

enforcement of illegal business terms under the abuse of dominance law (*Bundeskartellamt* 2019c: 7-9). From an economic perspective, however, issues of conflicts of laws and their interfaces do not play the central role. Instead, an economic reasoning may ask whether a continuous violation of data protection and privacy standards without counter-reactions by the users to enforce the respective laws represents *indication* of an abuse of market power, i.e. indication that Facebook can force whatever conditions they want upon its users.⁷

The (continuous) violation of data protection provisions may indicate that Facebook is abusing its powerful position despite legal and regulative requirements (*Bundeskartellamt* 2016). National data protection regulations constitute minimum standards and belong to the provisions of consumer protection. If Facebook is provoking its users to formally agree with the conditions of use, which in fact are breaching the minimum standards and thus infringe the data protection law, this can economically be regarded as an abuse of market power. The forced agreement to in fact illegal regulations is eventually only possible through Facebook exploiting its market power. Of course, the economic concept of abusive market power goes further than the prevailing regulations of data use. Clauses, which are legally in accordance with the relevant data protection laws, could also represent a case of abusive market power, if those go beyond to what users would accept as a maximum standard under the conditions of competition (*Monopolkommission* 2015). Hence, the crucial question is: Would consumers accept those arguable conditions of business under the conditions of fair competition or would they move to other competitors? If the second option was applicable, the existence of market power would become a necessary condition for providers of social networks to enforce these kinds of data usage terms, since those could not be enforced under the conditions of fair competition.

(iii) The Privacy Paradox

Regarding the question whether users actually care about their privacy and the protection of their personalized data, the so-called privacy paradox plays an important

⁷ We are not sure, however, whether this is the actual reasoning of the FCO.

role (see section 3.1). In terms of stated preferences in surveys or interviews, users usually claim to value their data, however, in terms of revealed preferences in experiments or actual market behavior, users often give away their personal data in exchange for any low-value good. This contradiction between stated and revealed preferences is called the privacy paradox.

If users do not care about their data, then even in competition they would not switch service providers because of better data protection or less data collection. This entails two lines of reasoning against Facebook abusing its market power (*Haucap* 2019; *Buiten* 2020). First, if there is no harm to users, then economically there is no abuse. Users may not experience disutility from the usage of their personalized data, perhaps also because they enjoy better targeted advertising or improved individualized services (see section 3.2). Second, if the dominant service provider acts as in competition, there is no case for an abuse as well.

However, while the contrast between stated and revealed preferences alleviates concerns about consumer welfare, it does not imply that all types and extents of data use are harmless to users (see section 3). Users are heterogeneous and the “take-it-or-leave-it” character of data consent agreements offered by a dominant service provider allows no user to deviate from the forced-upon standard. The privacy paradox, however, does not prove that some users would not like to choose different data collection and usage rules. The comprehensive heterogeneity of consumers (methodological individualism) along with the complexity of the dynamic coordination task of supply and demand leads economists to emphasize decentralized competitive market interaction as the superior coordination mechanism. In other words, instead of armchair speculations about what consumers would want in competition or not, it would be welfare-superior to enforce a competitive situation where users actually have the choice. Then, the self-organizing process of competition is likely to produce outcomes matching heterogeneous consumer preferences (*Hayek* 1948, 1978). The standards for General Terms and Conditions set by a dominant service provider are not a good substitute in this regard. Note, however, that the reasoning in the last paragraph points to re-creating competition in the market instead of a competition authority deciding how much data collection and which commercial use of personalized data may be allowed.

(iv) Excessive Data Collection and Excessive Prices

The economic theory of personalized data also allows an alternative line of argumentation. If personal data is used as a means of payment (“paying with data”; see sections 3.1 and 3.2), excessive data usage terms can be put on the same level with excessive prices, what would then constitute an exploitative abuse. In terms of economic reasoning, it is important to be aware of the fact, that money is not restricted to national currencies. In economics, money is considered in general as everything what fulfils the monetary function (*Menger* 1892; *Hicks* 1967). The function of money can be broken down to money used as (i) exchange and means of payment, (ii) store of value, and (iii) unit of account. While the first two are viewed to be essential, the importance of the third one is more controversial. If personal data is used in exchange for internet services (and therefore as a means of payment for those), data is consequently fulfilling the essential monetary function as well.⁸ Since June 2017, this understanding of money is also supported by German competition law, whereupon social network services constitute a market from a legal perspective despite transactions being “free” in a classical monetary sense (*Budzinski & Stöhr* 2019).

Notwithstanding this reasoning, there is a relevant difference between personal data and national currencies as money: in contrast to traditional money, personal data does not disappear or expire when used for payment; instead, it can be used again and again (*Budzinski & Stöhr* 2019; *Haucap* 2019). If it does not exhaust, the harm of providing it as payment is reduced, limiting the scope for excessive “prices” (in data currency). It still remains relevant for what purposes it is used and what kind of data is collected. A further difference is the users’ lack of experience with the currency “personal data” (transaction cost and asymmetric information; see section 3.1). This offers additional scope for excessive data prices, in particular, if an ample part of users is acting in a bound-rational (or even naïve) manner and further distortions of information or deficiencies are existent.

⁸ It is not uncommon, that other forms of money than the officially declared currencies are used in markets. Goods and private money have been used throughout history. Alternative money, like cigarettes or coffee, can often be dated back to times of high inflation and also recently the non-official crypto-currencies like Bitcoins.

Altogether, an abuse of dominance based upon excessive data extraction and usage conditions can represent a sound theory of harm from an economic perspective. However, it requires a case-specific reasoning and it is particularly challenging to identify the difference between a competitive data standard and an excessive, exploitative (supra-competitive) one. From an economic perspective, the latter issue cannot be replaced by taking (continuous) violations of consumer protection laws as a *prima facie* abuse of dominance, although it may serve as a supporting indication.

4.2 Excessive Data Processing from Third-Parties

Next to the issue of excessively collecting data directly from its users, the collection of personalized data from third-party sources and their combination with Facebook-data may be considered as a theory of harm. This theory of harm appears to be at the heart of the FCO case. More specifically, the data of internet users visiting non-Facebook websites with imbedded Facebook-features like Login-, Like- or Share-buttons (or from other applications of Facebook Business Tools) is transferred directly to Facebook even if user did not click these buttons (*Bundeskartellamt* 2019a: 37). For Facebook-users, this data then is combined with personalized data from Facebook usage (for technical aspects see *Bundeskartellamt* 2019a: 39). Data from non-Facebook users is also transferred to Facebook; however, since the main emphasis of the investigation was on Facebook-users, this issue had only side character and was not used in FCO argumentation.

Practices of third-party tracking extend and aggravate the problem of asymmetric information about collection and employment of personalized data. Even if the user agrees with it, the problems discussed in section 4.1 apply and – due to the increasing intransparency and asymmetry of information – the probability of negative consumer welfare effects increases. In the case of third-party tracking of users who do not hold an account with any Facebook service and, thus, did not agree (not even *pro forma*) to Facebook's data usage, the negative welfare implications become obvious from the viewpoint of data economics (see section 3.3). Whether this constitutes an exploitative abuse of market power in the direct relation of Facebook with its users firstly follows similar considerations as explored in section

4.1. Secondly, in the case of non-Facebook-users, an abusive market relation exists from an economic point of view. However, the legal question whether it relates to market power or represents a clear case of consumer protection law and policy becomes particularly relevant here (*Ezrachi & Robertson 2019; Buiten 2020; Robertson 2020*).

A different angle, however, takes the relation between Facebook and the websites who imbed the Facebook-features in their services into consideration. The incentives of companies to implement Facebook Business Tools appear to be of high relevance for the existence of the analyzed situation from an economic perspective, however, apparently, they do not play a role in the competition authority's reasoning. The market position of Facebook's services, i.e. their number of users, considerably influences the attractiveness of imbedding Facebook elements in third-party web service offers. And with the number of users, the bargaining power changes. If Facebook was one among several competitors, website service providers would still be interested to imbed its features – be it alongside others or exclusively – but they could also rely on competitors' features alone. If Facebook dominates its markets, this choice disappears, and website service providers face a "take-it-or-leave-it"-situation. Data-transferring and -usage between the website service providers and Facebook are contractually fixated. The terms and conditions of these contracts considerably depend on Facebook's market power: in the case of competition, it would appear to be unlikely that Facebook was able to enforce far-reaching data-transfer and -usage conditions vis-à-vis these website service providers. As a dominant company, however, Facebook may utilize its market power to shape these business-to-business conditions in an anticompetitive way – at the detriment of both website service providers and consumers. Content providers may face a situation of economic dependence on the dominant Facebook service (*Bougette et al. 2019*).

This second angle to the third-party tracking theory of harm is interesting because it differs in one of the possible defenses. In the preceding section, we argue that user behavior towards data terms and conditions may not differ in competition as users – rationally or not – ignore these type of consent agreements and/or behave paradoxically. It seems safe to assume that business companies running website

services are neither ignorant nor naïve in this respect. In other words, it is much more likely that arrangements between Facebook and companies running websites/services would significantly differ between competition and dominance than in the case of users/consumers. Consequently, an abuse of market power by enforcing excessive data exploitation rules may be more visible in the business-to-business relations than in the business-consumer relation when it comes to the third-party tracking offense. At the end of the chain, consumer welfare is likely to be hurt in such scenarios.

In summary, this theory of harm is likely to be valid from an economic perspective. However, the reasoning differs from the one the FCO emphasizes. Thus, the FCO may have correctly prohibited anticompetitive conduct but for the wrong reasons.

4.3 Deterrence through Barriers to Access

Access to data is a general concern in databased markets (*Kerber 2016, 2018; Kerber & Schweitzer 2017*). A dominant service provider may utilize strategic barriers to access to data to deter horizontal competitors or to favor its own subsidiaries in up- and downstream markets (exclusionary abuse). However, due to the users being able to pay with their data multiple times, collecting personalized data is non-rival and may be collected without significant investment. Crucial issues relate to the reproducibility and exclusiveness of data as well as to the amount of data required to effectively compete since the rule of diminishing returns probably also applies to most commercial uses of data collection.

In the FCO's Facebook case, access to data is not directly an issue. However, the FCO refers to the role of Facebook's data collection for competitors, in particular on the advertising market, and derives a (in our counting third) theory of harm from it (*Bundeskartellamt 2019b: 5*). Due to its superior access to data (because of its dominant position on the user market for social networks combined with its allegedly excessive reach of user data extraction), Facebook is able to offer better targeted advertising and, thus, deters its competitors on the advertising side of its platform market. In this view, Facebook becomes more indispensable for advertising customers. On the one hand, this may constitute "by and large an efficiency

offense, which may even benefit users if they prefer more targeted advertising over advertising that is less related to user preferences" (*Haucap* 2019: 28), requiring to balance short-run positive efficiency effects with possible long-run negative effects of cementing market power. On the other hand, the FCO claims a dominant position of Facebook on the social network advertising market as a precondition (*Bundeskartellamt* 2019b: 5), which appears to be doubtful since the power of Alphabet-Google and its subsidiaries (including YouTube) in general online advertising markets is unlikely not to put competitive pressure on online advertising submarkets (*Haucap* 2019; *Budzinski & Lindstädt-Dreusicke* 2020).

4.4 Bundling, Tying, and Walled Garden Strategies

A fourth possible theory of harm relates to the bundling and tying of different services like social networks, short messaging systems or chat-services, etc., into one platform (so-called walled garden strategy), which leads to the expansion of its market dominating position by leveraging its market power to neighboring markets (*Gebicka & Heinemann* 2014; *Monopolkommission* 2015: 77). Furthermore, it sets incentives to favor its own subsidiary services over competitors when it comes to search and recommendation services. It has to be considered though, that a "one-stop shopping" may be favorable for the users and be in line with those personal preferences (*Monopolkommission* 2015: 76). Eventually the evaluation of bundling affects under the aspect of competition economics will also be subject to the circumstance of how far Facebook impedes the usage of competing services or increases the cost of switching. From an economic point of view, the consumer's welfare is declining if the users are strategically tightened to the platform, in a way that they cannot just easily get away from or that there are strategically excessive or even prohibitive costs of switching (i.e. lock-in effect). In particular, a market dominant company should not use its very position to affect competition and its users in a negative way. Seen from an economical point, strategic switching costs have thus to be regarded as a point of serious concern with potentials for both exclusionary and exploitative abuses.

Issues of bundling and tying were not part of the FCO's Facebook case. However, from an economic perspective they represent a more relevant area of anticompetitive concerns if digital service providers enjoy a dominant position. Particularly in the online world, dominance in one market can easily be employed by the powerful company to restrict and undermine competition in (upstream, downstream, conglomerate) related markets by means of self-privileging (search and recommendation bias), bundling and tying. Thus, these issues are likely to become a relevant anticompetitive concern in future cases.

5. Conclusion

In this paper, we have analyzed four possible theories of harm related to the German Facebook case from the perspective of modern data economics. Table 1 presents an overview and a summary of the main results from our analysis.

Table 1: Overview of Main Results

N	Theory of Harm	Could be valid as an abuse from an economic perspective?	Part of FCO Reasoning?
1	excessive data collection and conditions	ambiguous, requires case-specific reasoning	yes
2	excessive data processing from third parties	yes	yes, but doubtful reasoning
3	deterrence through barriers to access	rather no	rather yes
4	bundling, tying, and walled garden strategies	yes	no

The first theory of harm is ambiguous because there exist pro and contra reasoning regarding the validity of such theory of harm from an economic perspective (see 4.1). We argue that the disability of users to find out and choose better conditions regarding data collection (since they face "take-it-or-leave-it" decision) argues in favor of classifying data extraction as abusive behavior from an economic perspective. Additionally, violation of data protection law could be seen as an indicator for such behavior, but not directly classified as an abuse of dominance. As a contra reasoning, privacy paradox highlights doubts regarding revealed preferences of us-

ers for data collection practices. It is relevant since if there is no harm for consumers and there is no difference between dominant and non-dominant firms' behavior, than no abuse could be valid. In addition to the aforementioned arguments, the phenomenon of paying with data itself has specifics which lead to doubts on classifying excessive data extraction as an analogue to excessive prices (see 4.1 (iv)). Thus, the general outcome for the first theory of harm is that it is important to identify a competitive level of data collection (which would require to re-create and safeguard competition in this market) and corresponding behavior of consumers in order to support or decline abuse of dominance. So, for this theory of harm no general result can be drawn.

The second theory of harm is valid from an economic perspective. However, in our analysis we come to the conclusion that a different reasoning would be required from a data-economics perspective than the one employed by the FCO. Here, reasons why the situation of such extensive data collection was possible (in particular, established conditions for third-parties and their incentives for business-to-business relations, see 4.2) are more convincing than the user-centric argumentation of the FCO (i.e. pure reasoning from Facebook users' perspective).

Although the third theory of harm, anticompetitive barriers to data-access (section 4.3), was not central in the FCO's reasoning, it entails economic merit in general. However, the special characteristics of data markets cast doubt on its relevance in this Facebook case. Furthermore, the delineation of the relevant online advertisement market as a distinct social network advertising market appears to be rather narrow and, thus, suffers from the ignorance of disciplining competitive pressure exercised by other segments of online advertising.

The fourth theory of harm (section 4.4) we discuss is a potential one and was not part of this case. However, it points to relevant anticompetitive concerns in the context of the business behavior of companies like Facebook and, thus, we think that this is likely to play a more prominent role in future cases. In this context, it is interesting to consider that Facebook currently faces antitrust investigations and proceedings in several jurisdictions. Table 2 offers an overview on selected investi-

gations, revealing a considerable variety of allegations and anticompetitive concerns.

Table 2: Facebook Investigations by Antitrust Authorities

Antitrust authority, Jurisdiction	Start of the Case	Date of Decision	Main Allegations/Concerns	Fine Imposed	Source
State attorneys general, USA	Oct. 2019	X	47 attorneys general from around the nation plan to take part in a New York-led antitrust probe into Facebook. Main concerns are that Facebook may have put consumer data at risk, reduced the quality of consumers' choices, and increased the price of advertising.	X	<i>James</i> (2019)
The French Competition Authority, France	Sept. 2019	X	The French Competition Authority received a formal complaint of AdTech firm Criteo that Facebook undermines competition in online advertising by favoring its own services.	X	<i>Criteo</i> (2019)
The Competition and Markets Authority, UK	July 2019	X	Probe of Facebook's and Google's advertisement dominance within online platforms and digital advertising market study.	X	<i>Competition and Markets Authority</i> (2019)
The Hungarian Competition Authority, Hungary	Oct. 2016	06 Dec. 2019	Facebook infringes competition law by advertising its services as being free of charge and commercially benefits from user data with which users pay for the company's services.	€3.6 mln.	<i>Hungarian Competition Authority</i> (2019)
Federal Trade Commission (FTC), USA	Nov. 2011	24 July 2019	Facebook violates a 2012 FTC order regarding consumers' privacy and deceives users about their ability to control the privacy of their personal data.	\$5 Billion	<i>Federal Trade Commission</i> (2019)
The Italian Competition Authority (ICA), Italy	Apr. 2018	29 Nov. 2018	Facebook carries out an unfair commercial practice as it employs user data for commercial purposes without adequately informing consumers.	€10 mln.	<i>Italian Competition Authority</i> (2018)
	Jan. 2020	X	Non-compliance proceeding regarding ICA's 2018 decision.	X	<i>Italian Competition Authority</i> (2020)

While the FCO is thus not alone in challenging the business practices of Facebook, the German case still considerably deviates from most of the other investigations and proceedings. Focusing on indirect data trading via third party proceeding of personalized data represents an economically-sound approach, although the inher-

ent business-to-business relations may offer a superior way of demonstrating behavior that would not occur under competitive pressure. In Germany, Facebook is appealing the FCO ruling but, besides that, Facebook also seems to respond to the investigation and to the allegations. Some steps are done in changing terms and conditions of usage of social network (see *European Commission* 2019a,b) and of Facebook's interface, which now should provide more transparency regarding data collection and usage (*Facebook* 2019, 2020). However, at the moment it is still unclear, whether such changes are enough to prevent anticompetitive effects in future.

References

- Acquisti, A. & Varian, H.R. (2005), Conditioning Prices on Purchase History, in: *Marketing Science*, 24(3), 367-381.
- Acquisti, A., Taylor, C.R. & Wagman, L. (2016), The Economics of Privacy, in: *Journal of Economic Literature*, 54(2), 442-492.
- Akerlof, G. (1970), The Market for 'Lemons': Quality Uncertainty and the Market Mechanism, in: *The Quarterly Journal of Economics*, 84(3), 488-500.
- Akerlof, G. (1976), The Economics of Caste and of the Rat Race and other Woeful Tales, in: *The Quarterly Journal of Economics*, 90(4), 599-617.
- Anderson, S.P. & de Palma, A. (2012), Competition for Attention in the Information (Overload) Age, in: *RAND Journal of Economics*, 43(1), 1-25.
- Anderson, S.P. & Gabszewicz, J. (2006), The Media and Advertising: A Tale of Two-Sided Markets, in: V.A. Ginsburg & D. Throsby (eds.), *Handbook of the Economics of Art and Culture*, Vol. 1., Amsterdam: Elsevier, 567-614.
- Armstrong, M. (2006), Competition in Two-Sided Markets, in: *RAND Journal of Economics*, 37(3), 668-691.
- Becher, C. (2019), Germany - A Closer Look at the FCO's Facebook Decision, in: *European Competition and Regulatory Law Review*, 3(2), 116-121.
- Belleflamme, P. & Peitz, M. (2018), Inside the Engine Room of Digital Platforms: Reviews, Ratings and Recommendations, in: J. J. Ganuza & G. Llobet (eds.), *Economic Analysis of the Digital Revolution*, Funcas Social and Economic Studies 5 Madrid: Funcas, 75-114.

- Beresford, A.R. Kübler, D. & Preibusch, S. (2012), Unwillingness to Pay for Privacy: A Field Experiment, in: *Economics Letters*, 117(1), 25-27.
- Botta, M. & Wiedemann, K. (2018), EU Competition Law Enforcement Vis-À-Vis Exploitative Conducts in the Data Economy Exploring the Terra Incognita, Max Planck Institute for Innovation & Competition Research Paper 18-08, available at: <http://dx.doi.org/10.2139/ssrn.3184119> (accessed 20.10.2019).
- Botta, M. & Wiedemann, K. (2019), The Interaction of EU Competition, Consumer, and Data Protection Law in the Digital Economy: the Regulatory Dilemma in the Facebook Odyssey, in: *The Antitrust Bulletin*, 64(3), 428-446.
- Bougette, P., Budzinski, O. & Marty, F. (2019), Exploitive Abuse and Abuse of Economic Dependence: What Can We Learn from an Industrial Organization Approach? In: *Revue d'Economie Politique*, 129(2), 261-286.
- Brown, I. (2016), The Economics of Privacy, Data Protection and Surveillance, in: J. Bauer & M. Latzer (eds.), *Handbook on the Economics of the Internet*, Edward Elgar: Cheltenham, 247-261.
- Budzinski, O. & Grusevaja, M. (2017), Die moderne Medienökonomik personalisierter Daten: der Fall Facebook, in: W. Seufert (ed.), *Media Economics Revisited - (Wie) verändert das Internet die Ökonomie der Medien?* Baden-Baden: Nomos, 35-57.
- Budzinski, O. & Kuchinke, B. A. (2020), Industrial Organization of Media Markets and Competition Policy, in: B. von Rimscha (ed.), *Management and Economics of Communication*, Berlin: DeGruyter, forthcoming.
- Budzinski, O. & Lindstädt-Dreusicke, N. (2020), Antitrust Policy in Video-on-Demand Markets: The Case of Germany, in: *Journal of Antitrust Enforcement*, 8, forthcoming.
- Budzinski, O. & Schneider, S. (2017), Smart Fitness: Ökonomische Effekte einer Digitalisierung der Selbstvermessung, in: *List Forum für Wirtschafts- und Finanzpolitik*, 43(2), 89-124.
- Budzinski, O. & Stöhr, A. (2019), Competition Policy Reform in Europe and Germany - Institutional Change in the Light of Digitization, in: *European Competition Journal*, 15(1), 15-54.

- Buiten, M.C. (2019), *Regulating Data Giants: Between Competition Law and Data Protection Law*, in: K. Mathis (ed.), *New Developments in Competition Law and Economics*, Berlin: Springer, 265-294.
- Buiten, M.C. (2020), *Exploitative Abuses in Digital Markets: Between Competition Law and Data Protection Law*, in: *Journal of Antitrust Enforcement*, forthcoming.
- Bundeskartellamt (2016), *Bundeskartellamt Initiates Proceeding against Facebook on Suspicion of Having Abused Its Market Power by Infringing Data Protection Rules*, press release 2016-03-02, Bonn.
- Bundeskartellamt (2019a), *Decision B6-22/16 Facebook Inc. i.a. - The use of abusive business terms pursuant to Section 19 (1) GWB* (February 06, 2019).
- Bundeskartellamt (2019b), *Facebook FAQ, Background information on the Bundeskartellamt's Facebook proceeding* (February 07, 2019).
- Bundeskartellamt (2019c), *Facebook, Exploitative business terms pursuant to Section 19(1) GWB for inadequate data processing. Case Summary. B6-22/16* (February 15, 2019).
- Colangelo, G. & Maggiolino, M. (2018), *Data Accumulation and the Privacy-Antitrust Interface: Insights from the Facebook Case*, in: *International Data Privacy Law*, 8(3), 224-239.
- Colangelo, G. & Maggiolino, M. (2019), *Antitrust über alles. Whither competition law after Facebook?*, in: *World Competition*, 42(3), 355-376.
- Competition and Markets Authority (2019), *Online platforms and digital advertising market study*, available at: <https://www.gov.uk/cma-cases/online-platforms-and-digital-advertising-market-study> (accessed 25.02.2020).
- Criteo (2019), *Criteo Files Complaint With The French Competition Authority Against Facebook*, available at: <https://www.criteo.com/news/press-releases/2019/10/criteo-files-fca-complaint-against-facebook/> (accessed 25.02.2020).
- Deutscher, E. (2019), *How to Measure Privacy-Related Consumer Harm in Merger Analysis?*, in: B. Lundqvist & M.S. Gal (eds.), *Competition Law for the Digital Economy*, Cheltenham: Edward Elgar, 173-211.

- Ellger, R. (2019), Konditionenmissbrauch nach § 19 GWB durch Datenschutzverstoß – Der Facebook-Fall des Bundeskartellamts, in: *Wirtschaft und Wettbewerb*, 69(9), 446-454.
- European Commission (2014), Mergers: Commission approves acquisition of WhatsApp by Facebook, Press release, 3 October 2014, Brussels.
- European Commission (2017), Mergers: Commission fines Facebook €110 million for providing misleading information about WhatsApp takeover, Press release, 18 May 2017, Brussels.
- European Commission (2019a), Facebook changes its terms and clarify its use of data for consumers following discussions with the European Commission and consumer authorities, Press release, 9 April 2019, Brussels.
- European Commission (2019b), Factsheets on changes implemented by Facebook, available at:
https://ec.europa.eu/info/sites/info/files/live_work_travel_in_the_eu/consumers/documents/factsheets_on_the_changes_implemented_by_facebook.pdf (accessed 18.12.2019).
- Ezrachi, A. & Robertson, V.H.S.E. (2019), Competition, Market Power and Third-Party Tracking, in: *World Competition*, 42(1), 5-19.
- Facebook (2019), Now You Can See and Control the Data That Apps and Websites Share With Facebook, available at: <https://about.fb.com/news/2019/08/off-facebook-activity/> (accessed 29. 01.2020).
- Facebook (2020), Starting the Decade by Giving You More Control Over Your Privacy, available at: <https://about.fb.com/news/2020/01/data-privacy-day-2020/> (accessed 29.01.2020).
- Federal Trade Commission (2019), FTC Imposes \$5 Billion Penalty and Sweeping New Privacy Restrictions on Facebook, available at: <https://www.ftc.gov/news-events/press-releases/2019/07/ftc-imposes-5-billion-penalty-sweeping-new-privacy-restrictions> (accessed 07.12.2019).
- Franck, J.-U. (2016), Eine Frage des Zusammenhangs: Marktbeherrschung durch rechtswidrige Konditionen – Facebook im Visier des Bundeskartellamts, in: *Zeitschrift für Wettbewerbsrecht*, 14(2), 137-164.

- Gaenssle, S. & Budzinski, O. (2020), Stars in Social Media: New Light Through Old Windows? In: *Journal of Media Business Studies*, forthcoming.
- Gebicka, A. & Heinemann, A. (2014), Social Media & Competition Law, in: *World Competition*, 37(2), 149-172.
- Gross, R. & Acquisti, A. (2005), Information Revelation and Privacy in Online Social Networks: The Facebook Case, in: *Proceedings of the 2005 ACM Workshop on Privacy in the Electronic Society*, 71-80.
- Grossklags, J. & Acquisti, A. (2007), When 25 Cents is too much: An Experiment on Willingness-To-Sell and Willingness-To-Protect Personal Information, *The Workshop on the Economics of Information Security (WEIS)*, June 2007, Pittsburgh, USA.
- Hamelmann, L. (2018), *Competition Economics and Regulation of Online Markets*, Düsseldorf: DICE, available at: https://docserv.uni-duesseldorf.de/servlets/DerivateServlet/Derivate-50187/Lisa_Hamelmann_Dissertation.pdf (accessed 02.02.2020).
- Haucap, J. (2019), Data Protection and Antitrust: New Types of Abuse Cases? An Economist's View in Light of the German Facebook Decision, in: *CPI Antitrust Chronicle*, 2(2), 24-29.
- Haucap, J. & Stühmeier, T. (2016), Competition and Antitrust in Internet Markets, in: J. Bauer & M. Latzer (eds.), *Handbook on the Economics of the Internet*, Cheltenham: Edward Elgar, 183-210.
- Hayek, F.A. von (1948), The Meaning of Competition, in: F.A. von Hayek (ed.), *Individualism and Economic Order*, Chicago: University of Chicago Press, 92-106.
- Hayek, F.A. von (1978), Competition as a Discovery Procedure, in: F.A. von Hayek (ed.), *New Studies in Philosophy, Politics, Economics and the History of Ideas*, Chicago: University of Chicago Press, 179-190.
- Heidhues, P. & Köszegi, B. (2017), Naivete-Based Discrimination, in: *The Quarterly Journal of Economics*, 132(2), 1019-1054.
- Heidhues, P., Köszegi, B. & Murooka, T. (2016), Inferior Products and Profitable Deception, in: *The Review of Economic Studies*, 84(1), 323-356.

- Hermalin, B.E. & Katz, M.L. (2006), Privacy, Property Rights and Efficiency: The Economics of Privacy as Secrecy, in: *Quantitative Marketing and Economics*, 4(3), 209-239.
- Hicks, J.R. (1967), *Critical Essays in Monetary Theory*, Oxford: Oxford University Press.
- Hirshleifer, J. (1971), The Private and Social Value of Information and the Reward to Inventive Activity, in: *The American Economic Review*, 61(4), 561-574.
- Hirshleifer, J. (1980), Privacy: Its Origin, Function, and Future, in: *Journal of Legal Studies*, 9(4), 649-664.
- Hladjk, J., Werner, P. & Stoican, L. (2019), The German Facebook Case – Towards an Increasing Symbiosis Between Competition and Data Protection Laws?, in: *CPI Antitrust Chronicle*, 2(2), 30-35.
- Hoffmann, F., Inderst, R. & Ottaviani, M. (2020), Persuasion through Selective Disclosure: Implications for Marketing, Campaigning, and Privacy Regulation, in: *Management Science*, forthcoming.
- Hoppner, T. (2018), Data Exploiting as an Abuse of Dominance: The German Facebook Decision, available at: <http://dx.doi.org/10.2139/ssrn.3345575> (accessed 20.10.2019).
- Hui, K.-L. & Png, I.P.L. (2006), The Economics of Privacy, in: T. Hendershott (ed.), *Economics and Information Systems*, Vol. 1, Amsterdam: Elsevier, 1-23.
- Hungarian Competition Authority (2019), GVH imposed a fine of EUR 3.6 M on Facebook, available at: https://www.gvh.hu/en/press_room/press_releases/press_releases_2019/gvh-imposed-a-fine-of-eur-3.6-m-on-facebook (accessed 07.12.2019).
- Italian Competition Authority (2018), Facebook fined 10 million Euros by the ICA for unfair commercial practices for using its subscribers' data for commercial purposes, available at: <https://en.agcm.it/en/media/press-releases/2018/12/Facebook-fined-10-million-Euros-by-the-ICA-for-unfair-commercial-practices-for-using-its-subscribers%E2%80%99-data-for-commercial-purposes> (accessed 25.02.2020).

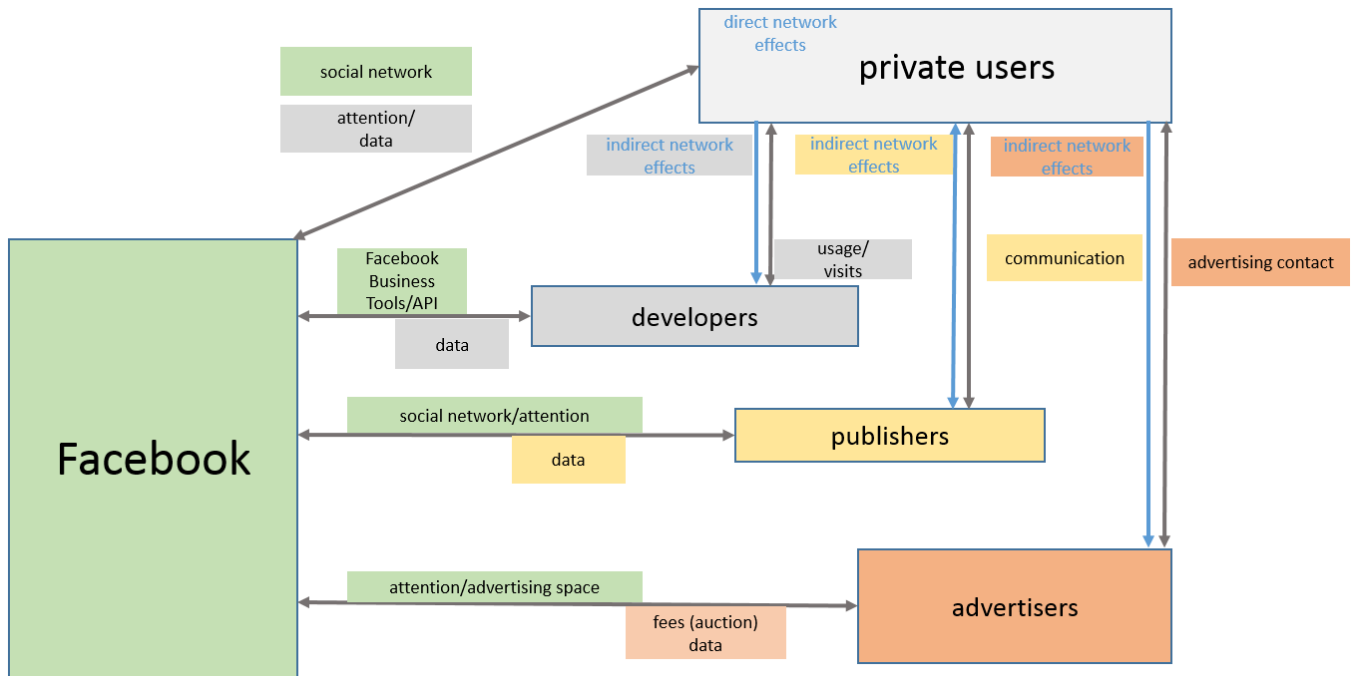
- Italian Competition Authority (2020), ICA starts non-compliance proceedings against FB, available at: <https://en.agcm.it/en/media/press-releases/2020/1/ICA-starts-non-compliance-proceedings-against-FB> (accessed 25.02.2020).
- James, L. (2019), Attorney General James Gives Update on Facebook Antitrust Investigation, available at: <https://ag.ny.gov/press-release/2019/attorney-general-james-gives-update-facebook-antitrust-investigation> (accessed 25.02.2020).
- Kathuria, V. (2019), Greed for Data and Exclusionary Conduct in Data-driven Markets, in: *Computer Law & Security Review*, 35(1), 89-102.
- Kerber, W. (2016), Digital Markets, Data, and Privacy: Competition Law, Consumer Law and Data Protection, in: *Journal of Intellectual Property Law & Practice*, 11(11), 856-866.
- Kerber, W. (2018), Data Governance in Connected Cars: The Problem of Access to In-Vehicle Data, in: *Journal of Intellectual Property, Information Technology and Electronic Commerce Law*, 9(3), 310-331.
- Kerber, W. & Schweitzer, H. (2017), Interoperability in the Digital Economy, in: *Journal of Intellectual Property, Information Technology and Electronic Commerce Law*, 8(1), 39-58.
- Klotz, H. (2016), Google und Facebook im Kontext von Art. 102 AEUV – Missbrauch von Marktmacht auf unentgeltlichen Nutzermärkten, in: *Wirtschaft und Wettbewerb*, 66(2), 58-65.
- Lancieri, F.M. (2019), Antitrust and Data Protection: A Tale with Many Endings, in: *CPI Antitrust Chronicle*, 2(2), 44-48.
- Massolo, A. (2018), Bundeskartellamt vs Facebook: Time to Refresh 'GDPR's Wall'? In: *Rivista Italiana di Antitrust/Italian Antitrust Review*, 5(1), 77-84.
- Menger, C. (1892), On the Origin of Money, in: *Economic Journal*, 2, 239-255.
- Monopolkommission (2015), *Competition Policy: The Challenge of Digital Markets*, Special Report No. 68, Bonn.
- Obar, J. A. & Oeldorf-Hirsch, A. (2020), The Biggest Lie on the Internet: Ignoring the Privacy Policies and Terms of Service Policies of Social Networking Services, in: *Information, Communication & Society*, 23(1), 128-147.

- Podszun, R. (2019), Regulatory Mishmash? Competition Law, Facebook and Consumer Protection, in: *Journal of European Consumer and Market Law*, 8(2), 49-52.
- Posner, R.A. (1981), The Economics of Privacy, in: *The American Economic Review*, 71(2), 405-409.
- Reuters (2019) German cartel office to take Facebook case to High Court, available at: <https://www.reuters.com/article/us-facebook-germany/german-cartel-office-to-take-facebook-case-to-high-court-idUSKCN1VG1AJ> (accessed 20.10.2019).
- Robertson, V.H.S.E. (2020), Excessive Data Collection: Privacy Considerations and Abuse of Dominance in the Era of Big Data, in: *Common Market Law Review*, 57(1), 161-190.
- Rochet, J.-C. & Tirole, J. (2003), Platform Competition in Two-Sided Markets, in: *Journal of the European Economic Association*, 1(4), 990-1029.
- Rochet, J.-C. & Tirole, J. (2006), Two-Sided Markets: A Progress Report, in: *RAND Journal of Economics*, 37(3), 645-667.
- Rothmann R. (2018), Ungewollte Einwilligung? Die Rechtswirklichkeit der datenschutzrechtlichen Willenserklärung im Fall von Facebook, in: A. Roßnagel, M. Friedewald & M. Hansen (eds), *Die Fortentwicklung des Datenschutzes*, Wiesbaden: Springer Vieweg, 59-75.
- Schneiders, P. (2019), Unbedingt abwehrbereit, aber bedingt zuständig? Eine interdisziplinäre Evaluation der Facebook-Entscheidung des Bundeskartellamts vor dem Hintergrund der Konvergenz von Wettbewerbs- und Datenschutzrecht, in: *UFITA*, 83(1), 238-278.
- Staube, P. (2019), Facebook's Abuse Investigation in Germany and Some Thoughts on Cooperation Between Antitrust and Data Protection Authorities, in: *CPI Antitrust Chronicle*, 2(2), 36-43.
- Stigler, G.J. (1980), An Introduction to Privacy in Economics and Politics, in: *The Journal of Legal Studies*, 9(4), 623-644.
- Taylor, C.R. (2004), Consumer Privacy and the Market for Customer Information, in: *RAND Journal of Economics*, 35(4), 631-651.
- Tucker, C.E. (2012), The Economics of Advertising and Pricing, in: *International Journal of Industrial Organization*, 30(3), 326-329.

- Varian, H.F. (1997), Economic Aspects of Personal Privacy, in: W.M. Daley & L. Irving (eds.), *Privacy and Self-Regulation in the Information Age*, Washington, D.C.: U.S. Dept. of Commerce.
- Volmar, M.N. & Helmdach, K.O. (2018), Protecting Consumers and their Data through Competition Law? Rethinking Abuse of Dominance in Light of the Federal Cartel Office's Facebook Investigation, in: *European Competition Journal*, 14(2-3), 195-215.
- Wils, W.P. (2019), The Obligation for the Competition Authorities of the EU Member States to Apply EU Antitrust Law and the Facebook Decision of the Bundeskartellamt, in: *Concurrences*, 3, 58-66.

Appendix

Source: *Bundeskartellamt* (2019a: 64)



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